The Behavior Analyst 1987, 10, 243–251 No. 2 (Fall)

Book Review

Doing It Without Arrows: A Review of Lavigna and Donnellan's *Alternatives to Punishment: Solving Behavior Problems with Non-Aversive Strategies*

Saul Axelrod
Temple University and Applied Behavior Systems

Throughout the relatively short history of applied behavior analysis, the field has had to struggle with the ethics of using punishment procedures to reduce or eliminate socially unacceptable behavior. The issue has now become magnified. In 1982, the executive committee of a professional organization (The Association for Persons with Severe Handicaps, TASH) passed a resolution rejecting the use of punishment procedures with handicapped persons. The policy was later endorsed by the Association for Retarded Citizens (*TASH Newsletter,* February, 1986, p. 1). In addition, litigation concerning the practices of the Behavior Research Institute with its severely impaired clients has received prime-time media attention. These events, plus the fact that I had previously coedited a book on punishment (Axelrod & Apsche, 1983) sparked my interest in Gary Lavigna and Anne Donnellan's book, *Alternatives to Punishment: Solving Behavior Problems with Non-Aversive Strategies.*

In the introduction to the text, the authors indicate that their purpose is to identify nonaversive procedures that can be applied effectively with the severe and dangerous behavior problems "learners" frequently exhibit. They cite their own work in which "the classroom behavior of five autistic and severely handicapped adolescent students was modified with exclusively non-aversive procedures" (xiv) and they also indicate that other professionals have "anecdotally" reported similar successes. The authors further claim that punishment procedures, defined as response contingent operations that decrease the frequency, intensity, and/or duration of behavior, are unnecessary. At various points, Lavigna and Donnellan explicitly and implicitly indicate that serious and dangerous behaviors can be managed by reinforcement, stimulus control, and feedback procedures alone. They also reject the use of extinction procedures due to the negative side effects and other characteristics shared with punishment operations.

The issues that the authors raise are important ones. On the one hand, if practitioners abandon an effective methodology and replace it with an ineffective one, they risk the gains in civil rights attained by handicapped people in recent years. Thus, the inability to control severe patterns of inappropriate behavior could increase public resistance to deinstitutionalization of handicapped individuals. On the other hand, if handicapped individuals, particularly those with severe impairments, are unnecessarily subjected to punitive techniques, then the effectiveness and humaneness of our discipline's practioners are called into question.

Alternatives to Punishment: Solving Behavior Problems with Non-Aversive Strategies was published by Irvington Publishers (1986, 258 pp., $27). Reprints may be obtained from Saul Axelrod, Special Education Program, Temple University, Philadelphia, PA 19122.

EVALUATIVE CRITERIA

In reading the book, I wondered whether the authors could really "do it?" Could they repeatedly provide examples of how the extreme self-injurious or aggressive behavior of severely retarded or autistic individuals could be reduced without using punishment procedures? Further could they do it quickly, inexpensively, and using a level of technology that can reasonably be expected to exist at the majority of facilities? In addition, it seemed appropriate to determine the degree to which the procedures the authors used were socially acceptable, applicable in minimally restrictive environments, and in the long-term best interests of the learners. These questions seem reasonable to me, given that they concern practical exigencies and given that procedures in which punishment techniques are combined with positive reinforcement procedures already appear in the literature and meet such conditions. I decided that I would not be much impressed with instances of reducing mildly inappropriate behavior with nonaversive techniques, nor would I be impressed with cases in which the individuals involved had only minor handicaps or no handicaps at all. Such demonstrations have appeared in the behavioral literature from the outset and hardly constitute a unique contribution.

My overall conclusion is that, although the authors predominantly used procedures that are acceptable in mainstreamed settings, their work did not satisfy most of the above criteria. Their procedures largely reduced the short-term discomfort associated with punishment procedures, but did not provide sufficient evidence of offering an effective and feasible technology that resulted in long-term gains for learners who exhibit serious behavior problems. There were, I believe a number of crucial shortcomings. First, a large portion of the book deals with either mild management problems or minimally impaired individuals. Second, the authors frequently used a high technology approach whose cost and technical skill requirements are not always realistic. And third, the book is not one of high scientific merit. It was common to see several consecutive pages of recommendations without relevant citations or with no citations at all. Graphs of data were seldom presented; instead, the reader had to rely on the conclusions of the authors. As a result, the book falls somewhere between a clinical case study approach and an actual scientific analysis.

A fourth difficulty was that the authors consistently refer to "punishment" procedures alone, without acknowledging that behavior analysts from Azrin and Holz (1966) to Van Houten (1983) have pointed to the superiority of a combination of reinforcement and punishment procedures over punishment alone. Combined procedures are a very common practice in the field, yet I did not see any recognition of this fact on Lavigna and Donnellan's part.

A fifth problem is that the authors appear to assume that a procedure classified as punishment is "bad," and that one not classified as punishment is "good." Such assumptions are problematic in a number of ways. To begin with, consensus is not always clear about whether certain procedures should be classified as punishment techniques. For example, Sulzer-Azaroff and Mayer (1977) describe response-cost, timeout, and overcorrection as aversive procedures, but not as punishment techniques. Also, Guess, Helmstetter, Turnbull, and Knowlton (1987) distinguish overcorrection from punishment. In addition, in many cases Lavigna and Donnellan themselves use procedures, such as differential reinforcement of low rates of response (DRL) and differential reinforcement of other behavior (DRO), whose imposition could easily function as punishment—a point made by Van Houten (1986) that will be amplified later.

The difficulty of distinguishing positive reinforcement from punishment procedures was discussed by Phillips, Phillips, Fixsen, and Wolf (1971) who described a fixed token system in which a person could earn, for example, 100 tokens and in which it took that many tokens to purchase the desired privileges.

In such a system, whether the consequences are a matter of earning tokens for appropriate behavior or losing tokens for inappropriate behavior, or a combination of the two, is somewhat arbitrary. "In a fixed token economy there would be no way to make-up unearned or lost tokens. Thus, it is not really possible to distinguish positive reinforcement and punishment in a fixed economy" (Phillips et al., 1971, p. 57).

Lavigna and Donnellan spend surprisingly little space describing what is "bad" about punishment procedures. It is clear, however, that one of their objections is the adverse side effects that accompany punishment procedures (see Azrin & Holz, 1966; Newsom, Favell, & Rincover, 1983). Yet, such a position does not take into account the adverse side effects that accompany some reinforcement procedures (Balsam & Bondy, 1983).

One could quibble at length over each of the above matters. The critical point is that the dichotomization of reinforcement and punishment into "good" and "bad" is not a simple matter, both because of definitional ambiguity and because of research that reveals favorable and unfavorable side effects for both procedures.

CONTENTS

Lavigna and Donnellan's book consists of 13 chapters and four appendices. The first four chapters give the authors' philosophy on solving management problems, and some background for the technology that they use. The next nine chapters describe the details of the procedures they endorse. The final chapter states the authors' general conclusions. The format and writing style are nearly always clear. The information and topics are appealing both to the novice and the veteran.

Chapter 1: Ethical Considerations

The first chapter addresses ethical considerations in treatment, with a major assertion being that effectiveness is not the only criterion by which to judge a particular procedure. A point is raised from the classical humanities literature as to whether one has the right to cause even temporary suffering that results in long-term benefit to the individual. In addition, the authors suggest factors related to identifying a behavior as undesirable, and therefore a target for modification. Moreover, they state that behavior is not simply "acceptable" or "unacceptable," but that there are degrees of acceptability, depending on the extent to which the behaviors affect the quality of life. The authors state that even highly unacceptable behavior does not justify the use of punishment procedures and that such behavior can be modified by nonpunitive procedures, urgency notwithstanding. This position appears to give an unreasonable bias to short-term rather than long-term considerations.

Later in the chapter, the authors discuss procedural evaluation, recommending that procedures be evaluated not only by the speed with which they produce an effect and by their ability to establish a generalized effect, but also by the associated side effects. The authors also indicate that one must consider a procedure in relation to available alternatives. In such a judgment, they recommend that therapists take into account intrusiveness and restrictiveness, as well as social factors. They later state that if one were interested only in eliminating behavior, a "flaming arrow through the heart" would be sufficient. Such hyperbole is an injustice to the views Lavigna and Donnellan oppose and is a contradiction of their own nonpunitive philosophy. Meanwhile, I have yet to see the flaming arrow procedure in the behavioral literature.

The authors state here, as elsewhere, that our professional goal should not be to create nonbehaving people. I strongly agree with this position, yet mostly note that the DRO and DRL procedures they subsequently recommend could lead to this outcome. Finally, the authors claim in this, and other chapters, that the extensive use of punishment procedures has created a false impression that punishment is more effective than its alternatives. The authors clearly point out the difficulty of conducting comparison re-

search. Nevertheless, a perusal of the behavioral literature indicates a plethora of cases in which serious misbehaviors were dramatically reduced with treatment packages in which punishment was a component of a larger package and relatively few cases in which such reductions occurred without the punishment component. Also, it is hard to imagine why a treatment package containing two powerful procedures—positive reinforcement and punishment—would not be more effective than treatment containing only one procedure.

Chapter 2: Administrative Considerations

The second chapter is concerned with administrative considerations in intervention. The authors state that an increasing number of administrative and legal factors must be dealt with in program implementation. Lavigna and Donnellan also point out that, perhaps because of the explicitness and clarity of behavior modification procedures, the techniques come under more scrutiny than do alternative approaches. The authors express the concern that if administrative and legal regulations make behavioral procedures too cumbersome to carry out, practitioners will rely instead on mechanical and chemical restraints to control learner behavior. Presumably, they feel less reliance on punishment procedures will reduce the likelihood of excessive scrutiny.

The second chapter concludes with an excellent discussion of informed consent. Among the complicated issues is the degree to which individuals are informed of alternative procedures, the competence of the practitioners in the case, and the extent to which clients or third parties are free to give consent. Again, the authors claim that the complexities are reduced with nonpunitive approaches.

Chapter 3: The Functional Analysis of Behavior

The third chapter was written by Richard Mesaros and is concerned with the functional analysis of behavior. His approach takes into account the context in which behavior occurs. For instance, if inappropriate behavior occurs because a learner is lonely or bored, then rather than placing a consequence on the behavior, or its absence, the problem may be solved by providing the individual with a more stimulating environment. Mesaros suggests three types of functional analyses: (a) an analysis of the global ecology that may occasion the behavior, (b) a more specific analysis of antecedent and consequent events that might be related to the problem, and (c) an analysis of the communicative function (i.e., "meaning") that the behavior may serve.

Overall, the chapter suffers from a lack of specific information on how to conduct functional analyses. Probably because of publication deadlines, Mesaros does not mention work by Touchette, MacDonald, and Langer (1985) using scatter plots, and research by Mace, Page, Ivancic, and O'Brien (1986) using analogue conditions to conduct functional analyses. These techniques reduce much of the guess-work in the process. The omission of such material caused the chapter to be more suggestive than practical.

Chapter 4: Positive Programming

The fourth chapter, also written by Mesaros, is concerned with positive programming. Positive progamming is defined as a more gradual approach to behavior change than the contingent use of consequences, which the author claims is characterized by "on" or "off" conditions. Instead, he describes positive programming as including systematic instruction in effective behavior patterns that is based on a complete functional analysis. Most examples of positive programming dealt with minimally handicapped individuals who exhibited problems that appear in the traditional clinical literature (e.g., unassertiveness, communication skill deficits among dating couples, alcoholism, and drug dependence).

The advantages Mesaros claims for positive programming are its positive and

constructive nature, long-term maintenance of gains, prevention of problems, efficiency, social acceptability, and human dignity. He offers no citations or data to verify the first four claims, and only peripheral citations for the final two. After reading the chapter, I was uncertain what positive programming was, how one would apply it, and what its relevance was to severe management problems.

Chapters 5–13: Intervention Strategies

The format for the fifth through thirteenth chapters is to describe one or more intervention strategies, give the advantages, provide cautions, make suggestions for implementation, and present ideas for future research.

Chapter 5. The fifth chapter deals with differential reinforcement of alternative behavior (Alt-R).The procedure is the well-known one of reinforcing behavior patterns that are different from the acceptable one. The authors point out that although the literature contains many examples of the procedure, it often is ineffective. They speculate that this is partially due to the complexity of applying the procedure. In order to increase the probability of success with Alt-R, Lavigna and Donnellan recommend reinforcing behavior that is topographically dissimilar to the target behavior. Thus, if one wished to eliminate scratching one's face, it would be more appropriate to reinforce toy play than to reinforce putting on makeup. They also recommend reinforcing behavior (e.g., in-seat) that cannot coexist with the behavior to be eliminated (e.g., out-of-seat).

The chapter on Alt-R does not offer much new information, but does provide a more fine-grained analysis of the procedure than typically appears in a single source. More crucial is the fact that few references are made to the procedure's use with seriously impaired learners or to severe management problems.

Chapter 6. The sixth chapter discusses the widely used procedure, DRO, which is defined in terms of a contingency for engaging in any behavior other than the target behavior over a given period of time. Thus, if aggression is the target behavior and the specified interval is 10 min, a reinforcer is delivered after 10 min of nonaggression.

The authors describe four variations of the procedure. These deal with whether a misbehavior causes a timer to be reset during or after the interval in which the behavior occurred, whether the interval is fixed or varied, and whether the interval is escalated following the target behavior. In the latter case, the absence of the target behavior (e.g., self injury) may cause the interval to be set at 10 min. Occurrence of the behavior, might result in a DRO interval of 15 min.

Before proceeding, we should consider whether DRO really is a positive reinforcement procedure. The authors distinguish DRO from response cost and time-out, and state that "literature in the field overwhelmingly addresses DRO as a positive procedure" (p. 61). They also cite other researchers who take a similar stance. Their conclusion, though, is questionable. First, all definitions of positive reinforcement indicate that the contingent stimulus that is delivered depends on the *occurrence* of specified behavior. With DRO, the contingent stimulus is delivered only if the specified behavior does *not* occur. Thus, DRO does not pass Lindsley's "Dead Man Test" as to whether a target for intervention actually represents behavior: "*If a dead man can do it or look like he's doing it, then it's not behavior*" (White, 1986, p. 526). Second, all definitions of positive reinforcement require an increase in the behavior that preceded the consequence. Definitions of DRO require no such increase. Third, occurrence of the target behavior postpones the delivery of the reinforcer. A procedure in which responding leads to a reduction in reinforcement density is a form of time-out from positive reinforcement (Van Houten, 1986). The case for this is even clearer with the variation of DRO in which occurrence of the target behavior leads to an escalation in the DRO interval. Thus, DRO qualifies as a form of punishment.

This chapter appeared to provide more examples of quick reduction of severe

management behaviors than the rest. Nevertheless, the procedure qualifies as a punishment technique. Misclassifying DRO as reinforcement is not unusual (e.g., Axelrod, 1983). The difficulty in the present case is that if DRO is punishment, using the procedure contradicts the authors' guidelines for acceptable programming. Interestingly the authors recommend modest deprivation of reinforcers in order to enhance the effectiveness of DRO. If this practice is applied to food reinforcers, it would violate the TASH resolution mentioned earlier.

Chapter 7. Chapter seven deals with DRL. The authors do an excellent job of distinguishing the procedure as used in the basic research literature with its use in the applied literature. As used in the basic literature, a reinforcer is delivered only if a response occurs after a specified amount of time has passed since the previous such response. Lavigna and Donnellan term the procedure DRL-IRT (interresponse time). By specifying an IRT greater than the mean value during baseline, the DRL procedure will lower the rate at which the behavior occurs. In using a DRL schedule, applied behavior analysts schedule delivery of a reinforcer only if the specified behavior occurs at a rate is below a certain level (e.g., four responses per hour). Unlike its use in the basic research literature, it is not necessary that the learner perform the behavior for the reinforcer to be delivered. In fact, since the procedure is used to eliminate behavior that has been targeted as inappropriate, it is desirable that the reinforcer *not* immediately follow the specified behavior.

As was the case with DRO, we need to examine whether DRL is a reinforcement procedure or whether it qualifies as punishment. The authors themselves recognize this problem when they state that "while this kind of consequential feedback may technically fit the definition of punishment, keeping it as innocuous as possible allows us to minimize aversiveness while maximizing the informational properties" (p. 86). Nevertheless, DRL appears to qualify as a punishment procedure. As was the case with DRO, the procedure does not pass the "Dead Man Test," since no specified behavior is reinforced. Second, occurrence of too high a rate of the behavior will result in a postponement of the reinforcer. Third, consequences are delivered following each inappropriate behavior (e.g., placing a slash on the chalkboard to keep track of misbehaviors). In a successful DRL program, the effect of such actions is to decrease the rate of the target behavior, as befits the definition of a punishment operation.

Chapter 8. Chapter eight discusses stimulus control—a situation in which a behavior is likely to occur in the presence of certain discriminative stimuli (S^Ds), but unlikely to occur in their absence (S^Δ). The authors point out that such control is brought about by reinforcing a behavior in the presence of S^D, but not reinforcing it during S^Δ. They further state that in many cases, the object of a program is *not* to eliminate a behavior pattern, but to get it to occur in an appropriate set of stimulus conditions. Thus, if a learner engaged in public masturbation, the goal of the program would be to have the learner engage in such behavior privately.

The general strategy suggested in the chapter is to identify a type of behavior that occurs in certain unacceptable situations, and to reinforce the behavior in S^D, but not in S^Δ. If the behavior is one which is appropriate in S^D, and the behavior occurs only in S^D, further action is unnecessary. If the behavior is one which is undesirable in all situations, the S^D is then presented less and less frequently.

Chapter 9. In chapter nine, the authors describe instructional control, a particular type of stimulus control. Instructional control exists when a behavior reliably occurs in response to a request or direction. Instructional control is seen by many as necessary for almost all learning to occur. It can be brought about by reinforcing compliance and extinguishing noncompliance. In cases with a zero level of compliance, the authors recommend a series of steps, including the use of prompts.

The authors see instructional control as relevant to decreasing unacceptable behavior in two ways. First, when a learner is under instructional control, teachers' or parents' requests to cease performing a behavior are often sufficient. Second, the authors point out that when learners become more compliant with requests, they also tend to engage less frequently in behaviors such as aggression and self-injury. At one point in the chapter, the authors described a procedure they used in which one of several posted pictures was removed from the wall every time a boy broke a rule. (Rule following was regarded as a type instructional control.) At the end of the day, the youngster received tokens based on the number of pictures that remained. By employing this response-cost procedure, the authors again made use of a punishment procedure.

I found both of the previous chapters stimulating and credit Lavigna and Donnellan with making readers aware of procedures that have received little attention in the behavioral literature. Nevertheless, the authors cite no research to support many of their suggestions for implementation, and offer little evidence that the procedures are applicable to serious misbehaviors or to populations with extreme handicaps.

Chapter 10. The tenth chapter introduces stimulus change as a means of temporarily bringing a behavior under control. It refers to the observation that an individual who is noncontingently and suddenly introduced to a novel stimulus will often cease responding for a period of time. The authors define stimulus change as "the non-contingent and sudden introduction of a novel stimulus or a dramatic alteration of the incidental stimulus conditions which results in a transitory period of response reduction" (p. 127). The stimulus itself must not serve as an S^D or as a consequence of behavior.

The authors refer to the phenomenon as a "honeymoon effect" and point out that when a disruptive student enters a new classroom, the individual often behaves appropriately before returning to previous behavior patterns. The authors, therefore, see it as ironic that some educational strategies eliminate the possibility of using stimulus change to minimize problems. When some students are to be transferred from one class to another (e.g., a special class to a regular class), educators often attempt to make the two environments as similar as possible. Such action reduces the possibility of benefitting from a "honeymoon effect." The authors admit that they are unaware of any controlled studies investigating stimulus change in the applied literature. Instead, they give anecdotes from their own and other people's experiences.

Chapter 11. Chapter eleven discusses respondent conditioning procedures and was written by Pat Mirenda. The techniques are based on the principle that associations are formed between stimuli that occur together. The strength of the association depends on the frequency with which the events are paired, and the intensity of the autonomic responses that are elicited. Procedures deriving from the model attempt to weaken the association and substitute a new association that elicits desirable responses. Many procedures based on respondent conditioning have aversive components (e.g., implosive therapy), but Mirenda refers only to progressive relaxation training (PRT) and systematic desensitization (SDS), which are seen as nonaversive.

Mirenada cites research on PRT with able-bodied, physically-handicapped, and mentally-handicapped learners. Included is a citation to research done by other authors in which PRT was employed with four young autistic children. As the children learned PRT in the classroom, violent and self-stimulatory behavior occurred less frequently. SDS, the second procedure discussed in the chapter, also makes use of muscle relaxation, and is primarily used to treat phobic behavior exhibited by adults.

Chapter 12. Chapter twelve, also written by Mirenda, describes covert conditioning. The author claims that there are three types of behaviors—overt responses, covert psychological responses such as thinking and feeling, and covert

physiological responses. The present chapter concentrates on the second type of response. Through imagery, involving covert consequences, it is assumed that cover responses can be manipulated in frequency. It is further assumed that there is a continuity between covert and overt responses, that covert and overt events can affect each other, and that covert and overt behaviors can be described by the same learning principles.

Chapter 13. In the thirteenth chapter, the authors attempt to round off the text by briefly mentioning three processes—stimilus satiation, shaping, and additive procedures. Satiation refers to identifying the reinforcer maintaining a behavior and making it freely available to the point that the behavior is weakened. The authors suggest using the shaping process to modify the nature, intensity, or duration of an inappropriate behavior gradually. The use of additive procedures refers to combining two or more techniques under the assumption that the resulting package will be more effective than any of the ingredients.

In chapters 11, 12, and 13 the authors admit to the same limitations that exist throughout much of the book. Namely, there is little research to support the efficacy of the procedures; there are few documented examples with handicapped individuals; and many of the procedures cannot be applied to extreme patterns of misbehavior.

Chapter 14: Conclusion

The authors begin the fourteenth and final chapter by restating their position that the behavioral literature is unnecessarily biased toward aversive techniques when the goal is the reduction of behavior. They further claim that practitioners have incorrectly inferred that punishment is superior to the alternatives, particularly in the reduction of serious problems. They speculate that the following factors have caused this situation: (a) From early childhood people learn to solve behavior problems through punishment; (b) the behavior of punishing others may be an unlearned, elicited response to aversive situations; (c) one's punishing of other people's behavior has been negatively reinforced; and (d) the attention punishment has received has created the false impression that it is more effective than it really is.

To be more specific about the last factor, the authors claim that it is erroneous to conclude that aversive strategies are more effective, rapid, or easy to implement than nonaversive strategies. They further claim that this conclusion is incorrect for both mild and serious behavior problems. In this vein, Lavigna and Donnellan state that practitioners should not consider using a punishment procedure unless they have carried out a full functional analysis and have failed with nonaversive procedures at least three times. (No rationale is provided for recommending three tries.) This advice, along with a statement in the introductory section that the authors have sometimes used punishment procedures (p. xiv), indicates that Lavigna and Donnellan's position on punishment falls on a continuum of acceptability, and that its use is not *categorically* rejected. This point is *not* made clear throughout the vast majority of the text and its presentation is almost inadvertent.

CONCLUSIONS

On one of the final pages of the text, Lavigna and Donnellan again indicate that the main "purpose of this book is to offer a comprehensive compendium of viable and fully available non-aversive techniques for use in behavior management programs in applied and research settings" (p. 182). At various points, they indicate that their technology can be applied to serious problems exhibited by severely- and profoundly-impaired learners. I was unconvinced that the latter could be done. Too few of the techniques had a major impact on the target behavior; too seldom were there examples of severely impaired clients with serious behavioral problems; data were too often absent to support claims; and, at times, the authors made use of punishment procedures. Lavigna and Donnellan's failure to use a scientific approach is highlighted by one recommendation

after another without relevant research citations. Their lack of dispassion on the punishment issue is conveyed by a failure to distinguish among punishment procedures. Thus, a raised eyebrow is not differentiated from seclusion time-out. Had we followed the author's suggestions to date, I suspect that nonaversive procedures would have solved some problems that had been dealt with through the use of punishment. But I also suspect that many problems would have gone unsolved or would have taken a dangerously long period of time to solve.

My overall disappointment with the book does not mean it is without merit. For one, by applying procedures such as stimulus control, stimulus change, and respondent conditioning to the reduction of behavior, the authors are describing approaches usually not found in behavior analysis texts. Many of these procedures merit further research. Also, even if they came up short, Lavigna and Donnellan's effort to squeeze the sponge of nonaversive techniques as dry as possible is commendable. Finally, they pressure behavior analysts to continue to assess a crucial issue—the role of punishment in its technology.

I am uncertain, however, if the field would be better off, or worse off, without the text. My own assessment is that one group of humane behavioral scientists has evaluated the research and concluded that punishment is unnecessary. Another group of humane behavioral scientists has concluded that selective use of punishment procedures, combined with reinforcement techniques, *is* necessary to solve some problems. The latter does not appear to be the authors' position. Rather the impression I had of their position is that the bad guys use punishment and the good guys don't—"Those who are irrevocably wedded to the use of aversive intervention will dismiss our position out of hand" (p. 182). If my impression is correct, a destructive division in the field could result.

As a final point, let us be clear that applied behavior analysis has never been pro-punishment. Rather, is is an approach to dealing with human behavior, in which scientific methodology is a major factor, and whose ultimate outcome is effective treatment.

REFERENCES

Axelrod, S. (1983). *Behavior modification for the classroom teacher.* New York: McGraw-Hill.

Axelrod, S., & Apsche, J. (Eds.). (1983). *The effects of punishment on human behavior.* New York: Plenum.

Azrin, W. C., & Holz, W. C. (1966). Punishment. In W. C. Honig (Ed.), *Operant behavior: Areas of research and application* (pp. 213–270). Englewood Cliffs, NJ: Prentice-Hall.

Balsam, P. D., & Bondy, A. S. (1983). The negative side effects of reward. *Journal of Applied Behavior Analysis, 16,* 283–296.

Guess, D., Helmstetter, E., Turnbull, H. R., & Knowlton, S. (1987). Use of aversive procedures with persons who are disabled: A historical review and critical analysis. *Monograph for the Association for Persons with Severe Handicaps* (No. 2).

Mace, F. C., Page, T. J., Ivancic, M. T., & O'Brien, S. (1986). Analysis of environmental determinants of aggression and disruption in mentally retarded children. *Applied Research in Mental Retardation, 7,* 203–211.

Newsom, C., Favell, J. G., & Rincover, A. (1983). The side effects of punishment. In S. Axelrod & Apsche (Eds.), *The effects of punishment on human behavior* (pp. 285–316). New York: Academic Press.

Phillips, E. L., Phillips, E. A., Fixsen, D. L., & Wolf, M. M. (1971). Achievement Place: Modification of the behaviors of pre-delinquent boys with a token economy. *Journal of Applied Behavior Analysis, 4,* 45–59.

Staff (1986, February). ARC resolution on aversives. *TASH Newsletter, 12*(2), p. 1.

Sulzer-Azaroff, B., & Mayer, G. R. (1977). *Behavior modification procedures for school personnel.* Hinsdale, IL: Dryden Press.

Touchette, P. E., MacDonald, R. F., & Langer, S. N. (1985). A scatter plot for identifying stimulus control of problem behavior. *Journal of Applied Behavior Analysis, 18,* 343–351.

Van Houten, R. (1983). Punishment: From the animal laboratory to the applied setting. In S. Axelrod & J. Apsche (Eds.), *The effects of punishment on human behavior* (pp. 13–44). New York: Academic Press.

Van Houten, R. (1986, March). *Treatment of aggressive difficult to manage persons: Opposing views on the necessity of using punishment.* Paper presented at annual conference of Applied Behavior Systems. Radnor, PA.

White, O. R. (1986). Precision teaching—precision learning. *Exceptional Children, 52,* 522–534.